

Amendments to the Specification

Please replace paragraph [0001] of the Specification with the following replacement paragraph:

-- [0001] This application claims the benefit of U.S. Provisional Patent Application No. 60/261,658 ~~60/251,658~~, filed January 12, 2001. This application is a continuation-in-part of U.S. Patent Application 10/044,421, filed January 11, 2002, now issued as U.S. Patent No. 6,665,456 and incorporated herein by reference. --

Please replace paragraph [0014] of the Specification with the following replacement paragraph:

-- [0014] For a more complete understanding of the features and advantages of the present invention, reference is now made to the detailed description of the invention along with the accompanying figures in which corresponding numerals in the different figures refer to corresponding parts and in which:

FIGURE 1 depicts a schematic in accordance with one aspect of the present invention;

FIGURE 2 depicts a schematic in accordance with another aspect of the present invention;

FIGURE 3 depicts the demodulated interference intensity signals recorded from two surfaces of a sample at 1300 nm in accordance with one aspect of the present invention;

FIGURE 4 depicts the measured single-pass phase retardation versus the angular rotation of a sample in accordance with one aspect of the present invention;

FIGURE 5 depicts the measured and actual orientation of the fast axis of a sample with respect to its horizontal axis in accordance with one aspect of the present invention;

~~FIGURE 6~~ FIGURES 6A-6C ~~depict~~ depicts an example of a non-linear algorithm to determine depth-resolved phase retardation in accordance with one aspect of the present invention; and

~~FIGURE 7~~ FIGURES 7A-7C ~~depict~~ depicts one aspect of a procedure to determine $\alpha(z, \Delta z)$ using as input, $\varphi_f, \theta_f, \theta_o$ estimates determined from the Levenberg-Marquardt non-linear algorithm and recorded PS-OCT data. --

Please replace paragraph [0021] of the Specification with the following replacement paragraph:

-- [0021] Owing to the birefringence of the PM fiber, any single segment of PM fiber attached to the coupler fiber in the sample path will result in unequal optical path-lengths for the two channels. Now referring to the sample path in FIGURE 1, when two equal length segments of PM fiber are spliced at 90° to each other, total optical path-length traversed by light in Ch1 and Ch2 is equal. In one embodiment of the sample path, there are two segments spliced to the PM fiber: segment A and segment B. One end of segment A ~~20~~ (20) is spliced at 0° to the coupler fiber 18 and the other end is spliced to segment B ~~22~~ (22) at 90°. In general, the length of segment A ~~20~~ (20) is equivalent to that of segment B ~~22~~ (22). Here, a 90° splice interchanges the two channels, i.e., Ch1 completely couples into the Ch2 and vice-versa and provide equal path-length between channels. Segment B ~~22~~ (22) is terminated with a connector 22 that may be an angle-cleaved connector. The connector 22 is attached to a collimator 24. --